AMENDMENT TO THE SPECIFICATION

Please amend specification paragraph **[0006]** as follows:

--**[0006]** There are several other aberrations that result in misfocus. Astigmatism, for example, occurs when vertical and horizontal lines focus ~~in~~at different planes. Spherical aberration occurs when radial zones of the lens focus at different planes. Field curvature occurs when off-axis field points focus on a curved surface. And temperature dependent focus occurs when changes in ambient temperature ~~effect~~affect the lens, shifting the best focus position. Each of these aberrations is traditionally compensated for by the use of additional lens elements.--

Please amend specification paragraph **[0010]** as follows:

--**[0010]** The systems described herein give in-focus resolution over the entire region of the extended depth of focus. Thus ~~it is~~they are especially useful for compensating for misfocus aberrations, astigmatism, field curvature, chromatic aberration, and temperature-dependent focus shifts.--

Please amend specification paragraph **[0084]** as follows:

--**[0084]** In the following description, the systems of Figure 1 and Figure 2 are examined using three methods. First, the magnitude of the OTFs of the two systems are examined for various values of misfocus. The magnitude of the OTF of a system does not completely describe the quality of the final image. Comparison of the ideal OTF (the standard system of Figure 1 when in focus) with the OTF under other ~~circumstance~~circumstances gives a qualitative feel for how good the system is.--

Please amend specification paragraph **[0090]** as follows:

--**[0090]** Figure 9 shows the ambiguity function of the extended depth of field system of Figure 2 utilizing the C-PM mask of Figure 3 (the C-PM system). This ambiguity function is relatively flat, so that changes in misfocus produce little change in the system OTF. α, as previously defined ~~on page 12~~, is set equal to three for this particular system, designated "the C-PM system" herein.--

Please amend specification paragraph **[00101]** as follows:

--**[00101]** Figure 31 shows an optical system according to the present invention for extended depth of field passive ranging. Passive ranging using an optical mask is described in U.S. Patent No. ~~5,521,596~~5,521,695 entitled "Range Estimation Apparatus and Method" by the present inventors, herein incorporated by reference. U.S. Patent No. ~~5,521,596~~5,521,695 discusses systems containing range dependent null space, which is substantially similar to the range dependent zeroes discussed below. --

Please amend specification paragraph **[00102]** as follows:

--**[00102]** Briefly, passive ranging is accomplished by modifying the incoherent optical system of Figure 2 in such a way that range dependent zeroes are present in the Optical Transfer Function (OTF). Note that the OTF of the EDF system discussed above could not contain zeroes, because the zeroes cannot be removed by post filtering to restore the image. In Figure 31, however, zeroes are added to encode the wavefront with range information. To find the range associated with small specific blocks of the image, the period of zeroes within a block is related to the range to the object imaged within the block. U.S. Patent No. ~~5,521,596~~5,521,695 primarily discusses amplitude masks, but phase masks can also produce an OTF with zeroes as a function of object range, and without loss of optical energy. Current passive ranging systems can only operate over a very limited object depth, beyond which it becomes impossible to locate the zeroes, because the OTF main lobe is narrowed, and the ranging zeroes get lost in the OTF lobe zeroes. Extending the depth of field of a passive ranging system makes such a system much more useful.--

Please amend specification paragraph **[00107]** as follows:

--**[00107]** Figure 35 shows the PSF of the EDF/PR system with ~~y~~$\Psi = 10$. The fact that Ψ is positive indicates that the object is on the far side of the in-focus plane from the lens. The two peaks of the PSF have moved closer together. Thus, it can be seen that the misfocus (or distance from in-focus plane) is related to the distance between the peaks of the PSF. The actual processing done by digital range estimator 75 is, of course, considerably more complicated, since an entire scene is

received by estimator 75, and not just the image of a point source. This processing is described in detail in U.S. Patent No. ~~5,521,596~~5,521,695.--

Please amend specification paragraph **[00115]** as follows:

--**[00115]** Thus, changes in temperature result in changes in the performance of optical systems like system 100. In particular, the image plane of an optical system like system 100 will move with temperature. EDF mask 20, combined with digital processing 35, increases the depth of field of system 100, reducing the impact of this temperature effect. In Figure 42, mask 20 is located between elements 102[[,]] and 104, but mask 20 may also be located elsewhere in the optical system.--